Name:

at1118paper: Complete the Square (v406)

Example

By completing the square, find both solutions to the given equation:

$$x^2 - 32x = -252$$

Add $\left(\frac{-32}{2}\right)^2$, which equals 256, to both sides of the equation.

$$x^2 - 32x + 256 = 4$$

Factor the left side.

$$(x - 16)^2 = 4$$

Undo the squaring. We need to consider both $\pm\sqrt{4}$.

$$x - 16 = -2 \quad \text{or} \quad x - 16 = 2$$
$$x = 14 \quad \text{or} \quad x = 18$$

Question 1

By completing the square, find both solutions to the given equation:

$$x^2 - 28x = -187$$

Question 2

By completing the square, find both solutions to the given equation:

$$x^2 - 52x = 1088$$

Question 3

By completing the square, find both solutions to the given equation:

$$x^2 - 6x \;=\; 475$$

Question 4

By completing the square, find both solutions to the given equation:

$$x^2 - 24x \;=\; -95$$

Question 5

By completing the square, find both solutions to the given equation:

$$x^2 + 22x \;=\; 720$$

Question 6

By completing the square, find both solutions to the given equation:

$$x^2 + 44x \;=\; -403$$